GRB and Solar Flares Science Team VRVS meeting 07/11/02

Present: J.Norris, S.Bansal, R.Svensson, G.Share, M. Ernst, F.Longo
(only Jay and Francesco were able to speak, the other could only hear)

1. GBM simulation

Jay reported the discussion that he had not been able to contact Rob Preece about GBM simulation within Gleam. It would take a lot of time. Two solutions are feasible: the first one to identify some of the group members to contact Rob and help him in the simulation within Gleam, the second to generate photons in both energy ranges and to analyse with different tools.

Francesco agreed on the two proposals and suggested that he could help in the GBM implementation in Gleam, also having the possibility to discuss directly with Toby Burnett next week on the technical requirements. He suggested also at least to include BGO simulation so to have the possibility to simulate photons in a common energy range to cross-calibrate the simulations.

Jay reported the problem about simulation of a large number of photons for the GBM simulation.

Francesco will try to investigate the event biasing techniques being developed by the Geant4 high energy physics community to solve similar problems.

2. Analysis Tools Developments

Jay reported the major upgrade in the GRB related analysis tools. The A6 tools have been subdivided in 6 smaller tools with different purposes. Comments and contributions should be sent to David Band and Seth Digel during Jay's absence (travel July 15-30, vacation until ~ August 25).
A good possibility and opportunity for the group is the collaboration that Jay started with J.Tueller that will develop similar tools for the BAT data on Swift. The BAT data will be immediately available to the community. We are asked to provide hints to them on what we need for temporal/spectral analysis of Swift data and what are the improvements we could suggest to this software. Surely a better temporal resolved spectral tool is needed (such as the GLAST A6 subtools).
Francesco commented that this could be a very good opportunity to start working on real GRB data, especially for new researchers.

Regarding the A7 tool, comment and suggestion are welcome. The tool should be mostly a fitting engine, with the possibility of having several models in it with different physical constraints. The starting point could be to find the physical constraints to the colliding shell model we already have.

3. Alerts

Jay asked to refine the time schedule for the alert work.
Francesco suggested this work plan: a) refine and validate simulations b) include GBM simulation c) find real on board information available d) start playing with trigger algorithms.

Jay explained a typical simulation where GBM information could help in finding HE photons to be transmitted on ground. He agreed with Francesco that the priority is to include the low energy photon simulation. Nicola, Johann, Sandhia and Sean had already done the job for including the two GRB models in Gleam. GRBSim will find the way to include correct duration and peak flux distribution. Francesco will contact Rob to start working on GBM simulation. The first implementation of the Strawman trigger is almost ready and will be distributed as soon as possible. Sandhia commented that she could do this job, as it is a simpler task than resolving some other issues she is working on, but she could do it before if people are interested in seeing it.

4. Solar Flares Simulation

Gerry asked about the simulation of GLAST response to flares. He gave us a spectrum last summer.

Jay asked whether temporal information could be useful. Gerry replied that the problem is concerned mainly with low energy photons and dead time effects.

Jerry and Sandhia will give a look on the way to include a solar flare spectrum in the simulation. Francesco suggested to see if the present design is appropriate for doing this and commented that probably it is and the problem is really to know from the flight-software group what are the real information we have on board.

5. Johann questions

Jay briefly reported about Johann's questions and answered to some of them. A more complete discussion is postponed to when Johann could attend the conference. The questions were about the spectral fitting methods, about the A7 tool requirements (see above) and about the environment. The actual stage of analysis tools development is more related to requirements than on design. After the October review the design phase will start.

6. A.O.B.

Francesco asked if he could propose an abstract to the GRB Rome2002 conference. The deadline is very close (15 july). He will prepare a brief abstract and send it to the group for comments and suggestions. Jay agreed that he or Nicola could take care of that with a close contact with Jerry Bonnell.